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THE PLANT DISEASE BULLETIN

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This number of the Bulletin, with the exception of the index number (Number 11), will be the last of Volume 5 for 1921. A series of Supplements containing the annual summary of the plant diseases of the year will be prepared and issued during the winter and spring, and the regular numbers of the Bulletin will reappear in the early summer of 1922.

CEREAL CROPS

CORN

Smut caused by Ustilago zeae.

Reports have been received from states which have not reported before on corn smut.

New Hampshire: Very little in the state. Once in a while a diseased stalk or two in a field. (Butler, October 1).

Connecticut: About the usual amount. Dr. Jones' breeding plots showed certain strains quite resistant and others susceptible, and these characters seem to be inherited. (Clinton, October 1).

Florida: No complaints, but from observation would say there was very little this year. (Burger, October 1).

Texas: Very prevalent this year; 2% loss. (Taubenhaus, October 1).

Minnesota: First reported June 13 from Ramsey County. Generally present throughout the state. Reports vary from trace to 30% infection. Unusually severe. (Department of Plant Pathology, October 1).

Colorado: All of our seed is being selected from the standing stalks in the fields. We hope to reduce the percentage of corn smut by this method. The percentage of smut in our various varieties and selections is so great in many cases as to be almost unbelievable. Many rows show between 40 and 50% of smutted stalks. This is true of the varieties being grown at Akron from imported seed, as well as from our own varieties. A few of the strains which showed low percentages of infection in 1920 are giving some slight promise of having comparatively low percentages of smut infection this season. (F. A. Coffman, Cereal Courier 13: 245. October 20).

Ear rots caused by Diplodia and Fusarium spp.

All reports indicate a high percentage of decayed and moldy ears of corn in the central corn belt states. Much of this rot has followed the injury of the corn ear worm which has done much damage this year and which, according to the Insect Pest Survey of the United States Department of Agriculture has broken out in most corn sections east of the Rocky Mountains.

It is hoped that as many collaborators and readers of this Bulletin as can will make an effort to collect field data on the extent of damage from ear rots, and will also watch corn in crib and bin during the winter and spring to note the effects of the rots on the stored corn.

Ohio: Mr. G. M. Smith and G. N. Hoffer inspected the sweet corn fields set aside by the Sears and Nichols Canning Company at Chillicothe and Circleville, Ohio, on September 27. The fields were badly damaged by the corn ear worm and Fusarium mold. Practically no seed ears of any value were found. This condition, however, seemed to be representative of corn in that section of the state. (G. N. Hoffer, Cereal Courier 13: 231. October 10.).

Last year out of some 8,000 ears tested, 15-20% were found infested with these disease organisms. This year we have found in the testing work so far conducted, more than 50% of the corn diseased. (Clayton, November 12).

Indiana: A survey of over thirty fields of dent corn in the vicinity of Lafayette by Prof. H. T. Wiancke, R. S. Thomas, and G. N. Hoffer on September 29 has shown that between 15 and 20% of marketable-sized ears have been rendered unfit by the ravages of the corn ear worm, and Diplodia and other molds. (G. N. Hoffer, Cereal Courier 13: 231. October 10).

Illinois: There is much rotten corn this year mainly due to secondary infections by Fusarium moniliforme following the ravages of the corn ear worm and to ear rots caused by Diplodia zeae. The season has been unusually favorable for infections by the latter organism. Selections of Reid's Yellow Dent from this locality and from other places in Illinois are showing wide variations in susceptibility to ear rots. (J. R. Holbert, Cereal Courier 13: 241. October 20).

Minnesota: First reported June 13, Ramsey County. Root rot common in southern

part of the state, but not doing much damage seemingly. Ear rot common throughout the corn region. (Department of Plant Pathology, October 1).

Iowa: Corn, especially on low late planted fields in some localities is being damaged by corn ear worm and molding. (Bureau of Markets and Crop Estimates Crop Notes, week ending October 1).

After a survey in parts of Iowa, Illinois, and Indiana, I have placed the loss of corn from ear rots at 4, 8, and 10%, respectively. Diplodia zeae is responsible for about four-fifths of the loss. Various molds following ear worms and mostly restricted to kernels injured thereby or adjacent thereto are responsible for the remainder. (R. O. Cromwell, October 25).

Leaf stripe caused by Helminthosporium turcicum.

Connecticut: Present and causing some injury to leaves in late August and September, but not serious. (Clinton, October 1).

FRUIT AND NUT CROPS

APPLE

Scab caused by Venturia inaequalis.

The following late-season reports summarize this year's scab situation in a number of the states:

New Hampshire: Very prevalent on McIntosh. As injurious as last year. (Butler, November 1).

Connecticut: Most serious outbreak for some years. (Clinton, November 1).

New Jersey: Very abundant in some localities. (Cook, November 1).

Maryland: About the same as last year, 3.5% loss. Greatest loss this year was to the foliage where premature defoliation resulted. (Temple, November 1).

West Virginia: Quite prevalent in most sections of the state. It has not caused very heavy fruit losses in the state this year, but it has weakened many trees for production next year and is also producing much infectious material which will likely cause trouble next spring. It has been readily controlled in sprayed orchards and we have had fair success with dust. The general fruit crop is light. (Giddings, November 1).

Virginia: Very general on foliage. Growers are greatly alarmed at prospects of injury next season due to carry over of infective material. (Fromme, November 1).

North Carolina: Especially severe in mountain section, causing complete defoliation in cases where spraying was not practiced. (Foster, November 1).

Oklahoma: Widely distributed over the state. Observed at Kingfisher and at Stillwater. (Stratton, September 1).

Ohio: Leaf and fruit infections in unsprayed orchards very severe, yet excellent results were obtained in all cases where proper attention was given control methods. (Thomas, November 1).

Michigan: Apples remarkably free from scab. (Bureau of Markets and Crop Estimates Crop Notes, week ending October 1).

Wisconsin: No additional report of importance. There is a mild late infection of scab on fruit. (Vaughan, November 1).
North Dakota: Apple scab seldom occurs in this state to any large extent, for two reasons: (1) Generally speaking, apples are not extensively produced. (2) Atmospheric conditions are evidently not satisfactory for the growth of the apple scab fungus. It has not been collected by us this year. (Bolley, November 1).
Idaho: Scab has been very common in unsprayed orchards this year. More so than for three years. (Hungerford, September 1).

Blotch caused by Phyllosticta solitaria.

In addition to those given in previous issues of the Bulletin, the following reports of blotch have been received:

Maryland: More than usual. Loss 1.5% on account of hot dry summer. (Temple, November 1).
Oklahoma: Found about Stillwater. Cankers cause severe damage. (Stratton, September 1).
Ohio: Practically all of Ohio is in the danger zone except the north-east quarter. (Thomas, November 1).

Fire blight caused by Bacillus amylovorus.

Except in North Carolina, fire blight is at least no more prevalent than it usually is in most states, and in several is less abundant, according to the following reports. The statement by R. E. Vaughan concerning the attempted eradication in Wisconsin is of especial interest.

New Hampshire: Very scarce. Causes little damage. (Butler, November 1).
Connecticut: At least the average amount. (Clinton, November 1).
New Jersey: Less severe than usual. (Cook, November 1).
Maryland: Much less than usual. (Temple, November 1).
West Virginia: Has caused trouble only in occasional orchards and apple trees in town. (Giddings, November 1).
Virginia: Severe locally but not prevalent generally. (Fromme, November 1).
North Carolina: Common over entire state wherever apples and pears are grown. Probably more common this season because of lack of care the trees have received. (Foster, November 1).
South Carolina: Present, extent of damage unknown. (Ludwig, November 1).
Oklahoma: Quite common over the state. Damage slight. Damage to the pear has been severe this year. (Stratton, September 1).
Wisconsin: Blight control by eradication of Transcendent Crab and any other varieties with hold-over cankers is being undertaken by the community around Hatchville, Dunn County. Every farm owner within a radius of three miles has agreed to take out the offending trees. The Western Orchards Company has over 100 acres in young orchard and were chiefly instrumental in starting the work. The Wisconsin State Department of Agriculture and College of Agriculture are cooperating with the local growers. So far as known this is the first community in Wisconsin to undertake a comprehensive campaign against blight. (Vaughan, November 1).
North Dakota: Apple blight is usually very common in this state in proportion to the amount of apples under cultivation; the reasons being that the

growing season is short with intermittant rainfall on fertile ground, so that the early growths are apt to be too succulent, hence, this fire blight disease spreads rapidly from the buds to the tissues of such succulent growths. This year fire blight has been far less destructive than in most years. (Bolley, November 1).

Black rot caused by Physalospora cydoniae.

New Jersey: Very common. (Cook, November 1).
Maryland: About as last year; 5% loss due to early wet spring. (Temple, November 1).
Virginia: Very prevalent as result of general failure to apply sprays. (Fromme, November 1).
South Carolina: Slight infection reported by state crop pest inspectors in nursery in Greenville County. (Ludwig, November 1).
Oklahoma: Found about Stillwater. This disease together with the more severe blotch with the cankers are destroying several orchards near Stillwater. (Stratton, September 1).
Ohio: Late season investigations have revealed the fact that black rot has become very firmly established in southern Ohio, closely rivaling apple scab as the prevailing disease in that section. Twenty to thirty year old trees are being killed within one to two seasons. (Thomas, November 1).

Cedar rust caused by Gymnosporangium sp.

Florida: Some specimens of crabapple were sent in from Leon County where it is said that the rust was severe on one property. (Burger, September 1).

PECAN

Scab caused by Fusicladium effusum.

South Carolina: Quite common in the lower part of the state, but not reported thus far this season from the Piedmont section. (Ludwig, November 1).
Florida: Prevalent; more than usual, more than last year. Causing injury to foliage, fruit, and branches; most serious in June and July. Treatment: Spray with Bordeaux 4-4-50. (Burger, November).

Dieback caused by Botryosphaeria berengeriana.

South Carolina: Quite serious in one grove in Richland County, apparently following rosette. (Ludwig, November 1).

Dieback (cause unknown).

Florida: This has been reported from several places. It is believed that this is a symptom of poor nourishment. It was noted that on one or two places the soil was of a sandy nature and no fertilizers had been applied. (Burger, November 1).

Rosette (environmental).

South Carolina: Quite general. Probably more common than usual, owing to the unusually dry season. (Ludwig, November 1).

VEGETABLE AND FIELD CROPS

POTATO

Fusarium wilt caused by Fusarium oxysporum.

Ohio: Extremely prevalent, as revealed by harvested potatoes, both from home grown and northern introduced seed. In many cases associated with bacterial contamination, which results in a wet rot condition. (Detmers, October 15).

Minnesota: Did not appear in serious condition until September 1. About average amount observed. (Department of Plant Pathology).

North Dakota: Fusarial wilt appears to be the chief agent in bringing about stem end browning and entrance of rot by way of the fibrovascular bundles. It is probably our chief agent of bringing about soft rot in connection with bad storage. Seed plot and certification work by means of which carefully selected seed is procured through selection, stem-ending and corrosive sublimate treatment is meeting with success. It seems to be the road out for the control of the disease under potato cropping. (Bolley, October 15).

Idaho: Fusarium has caused but very little trouble in this state this season. We occasionally find a plant, which from appearance you would say was affected with Fusarium wilt but they were an exception rather than a rule. (E. R. Bennett, November 1).

Colorado: Very prevalent and extremely bad in many individual cases. (MacMillan, October 31).

Rhizoctonia caused by Rhizoctonia solani.

Minnesota: Of minor importance on tubers this year. Cleanest potatoes from Red River Valley observed for several years. (Department of Plant Pathology, July 1).

Colorado: This disease is very prevalent in the state. In some cases it has not permitted seed certification. I am unable to state the loss from the disease. (Learn, October 15).

As the season progressed Rhizoctonia developed and did about 15% of the total damage incurred in the district. (H. G. MacMillan, Oct. 31).

Idaho: Rhizoctonia was very serious. Weather conditions in the spring caused it to injure the plants when they were coming up and this injury continued in many districts sufficiently late to cut off a large percentage of the underground stems causing a light set of tubers. At digging time it has again showed up in the sclerotial form so that much of our stock has a high percentage of black specks. (E. R. Bennett, November 1).

Russet dwarf (cause unknown)

Idaho: Scattered throughout southern Idaho, but not present in every field. Percentage of infection varied from a trace to 35%. (Raeder, September 1).

SWEET POTATO

Foot rot caused by Plenodomus destruens.

Tennessee: General where sweet potatoes are grown, in some regions 33% affected. (Essary, Sherbakoff, & Hesler, November 1).
North Carolina: No reports of the occurrence this year but probably present. (Foster, November 1).
Florida: About the same as in former years. (Burger, November 1).

Stem rot caused by Fusarium spp.

Virginia: Reported from Norfolk and Eastern Shore sections in slight amounts. (Fromme, November 1).
Tennessee: Very common. One field, whole crop affected. (Essary, Sherbakoff, & Hesler, November 1).
North Carolina: Probably the most common and destructive of the sweet potato diseases, being found in nearly every field where proper methods for the control of it have not been in practice. (Foster, November 1).
Florida: About the same as in former years. Only two or three cases reported to this office. (Burger, November 1).

Black rot caused by Sphaeronema fimbriatum.

Virginia: Reported from Halifax County, Norfolk, and Eastern Shore sections. Said to be especially prevalent on late crop. (Fromme, November 1).
Tennessee: Common in state, but not serious at digging. Too dry. (Essary, Sherbakoff, & Hesler, November 1).
North Carolina: The most common of all tuber rots in the state, being widely scattered and causing considerable loss, especially in storage houses. (Foster, November 1).
South Carolina: Present, but damage apparently less than usual. (Ludwig, November 1).
Florida: In some beds in west Florida the disease was severe on young plants. The prevalence about the same as last year. (Burger, November 1).

CELERY

Late blight caused by Septoria petroselini apii.

Connecticut: No complaints and apparently not more than average amount. (Clinton, November 1).

New Jersey: Abundant and causing heavy losses. Spraying with 5-6-50 effective. (Cook, November 1).

Delaware: Very prevalent and causing considerable loss in patches not sprayed. White Plume variety very susceptible compared with Early Blancher, Winter King, and French Success. Infection confined to outer stalks as the crown has made very little growth because of drouth conditions. Bordeaux dust and liquid Bordeaux have proved equally successful in control of late blight with our demonstration work. (Adams, November 1).

Ohio: Presence of this disease has been noted, yet losses have been slight. (Thomas, November 1).

Early blight caused by Cercospora apii.

Pennsylvania: Observed as common in some of the commercial celery fields in the truck section outside of Philadelphia during latter part of July. (Haskell, July).

Connecticut: About the usual amount or less. Few reports and no complaints. (Clinton, November 1).

New Jersey: Abundant and cause of heavy losses. Spraying with 5-6-50 Bordeaux effective. (Cook, November 1).

Delaware: Very prevalent during August and first part of July. Following varieties found generally infected, Winter Queen, White Plume, French Success, Golden Self Blanching, Winter King, and Early Blancher. (Adams, November 1).

Yellows caused by Fusarium sp.- Minnesota: This disease is reported for the first time in Minnesota causing almost 50% loss in a three acre celery field in Washington County. (Department of Plant Pathology, November 1).

Root and heart rot associated with Fusarium sp. - Ohio: A form of root rot generally associated with a dry heart rot has caused considerable loss on one large celery farm. About 8-10 acres were not harvested. A species of Fusarium was consistently found associated with the condition in all sections of the infected area. This disease will be investigated further. (Thomas, November 1).

Soft rot caused by Bacillus carotovorus. - Ohio: Has occasioned quite severe losses for some growers. (Thomas, November 1).

Root rot caused by Bacillus carotovorus. - New Jersey: Very destructive, especially on muck soils. (Cook, September 1).

Damping-off caused by Sclerotinia libertiana. - New Jersey: Severe in greenhouses. (Cook, November 1).

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